

Studies on Nearctic species of *Leucopis* (Diptera: Chamaemyiidae). II. New species

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Fifteen new Nearctic species of *Leucopis* (Diptera, Chamaemyiidae) are described: *L. canthogena* sp. n., *L. rotundogena* sp. n., *L. ankophalla* sp. n., *L. saliceti* sp. n., *L. schlingeri* sp. n., *L. velutinifrons* sp. n., *L. dislineata* sp. n., *L. philoisos* sp. n., *L. aglaia* sp. n., *L. characterophalla* sp. n., *L. askophalla* sp. n., *L. lotophila* sp. n., *L. shannoni* sp. n., *L. chillcotti* sp. n., and *L. hermanni* sp. n.

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During my stay in Canada in 1994, I studied the vast collection of *Leucopis* (Diptera: Chamaemyiidae) in the Canadian National Collection of Insects, Ottawa (CNC). Dr. J.F. McAlpine gave me his draft manuscripts about *Leucopis* including species studied by him. These manuscripts included a key using external morphology, but without the genital structure. Then I worked for three months with the collections of *Leucopis* in the National Museum of Natural History, Washington (NMNH) and the Illinois Natural History Survey, Urbana (INHS). In addition, some materials were studied in the collection of the Zoological Institute, St.Petersburg (ZIN). In total, I studied more than 2000 specimens. After returning to St.Petersburg, I received a significant portion (more than 700 specimens) of the collections of *Leucopis* belonging to CNC and NMNH, providing the framework of this study to be expanded.

This article is devoted to describing some new species of *Leucopis* Meigen (Diptera: Chamaemyiidae), with the types deposited in the Canadian National Collection, Ottawa (CNC) and the National Museum of Natural History, Washington D.C. (NMNH). This paper is the second from the series of my works on the Nearctic *Leucopis*. The first one (Tanasijtshuk, 2002) was devoted to the revision of the Nearctic types of *Leucopis* species described before 1965.

The methods of dissection and clearing of the male genitalia of *Leucopis* correspond to those described by Tanasijtshuk (1986). In this study, the drawings were made from glycerin-gelatin slides. The terminology follows McAlpine (1981). OT (ocellar triangle) index is the ratio of the distance between posterior ocelli to the distance between any posterior ocellus and the anterior one.

Genus ***Leucopis*** Meigen, 1830

Species group *annulipes*

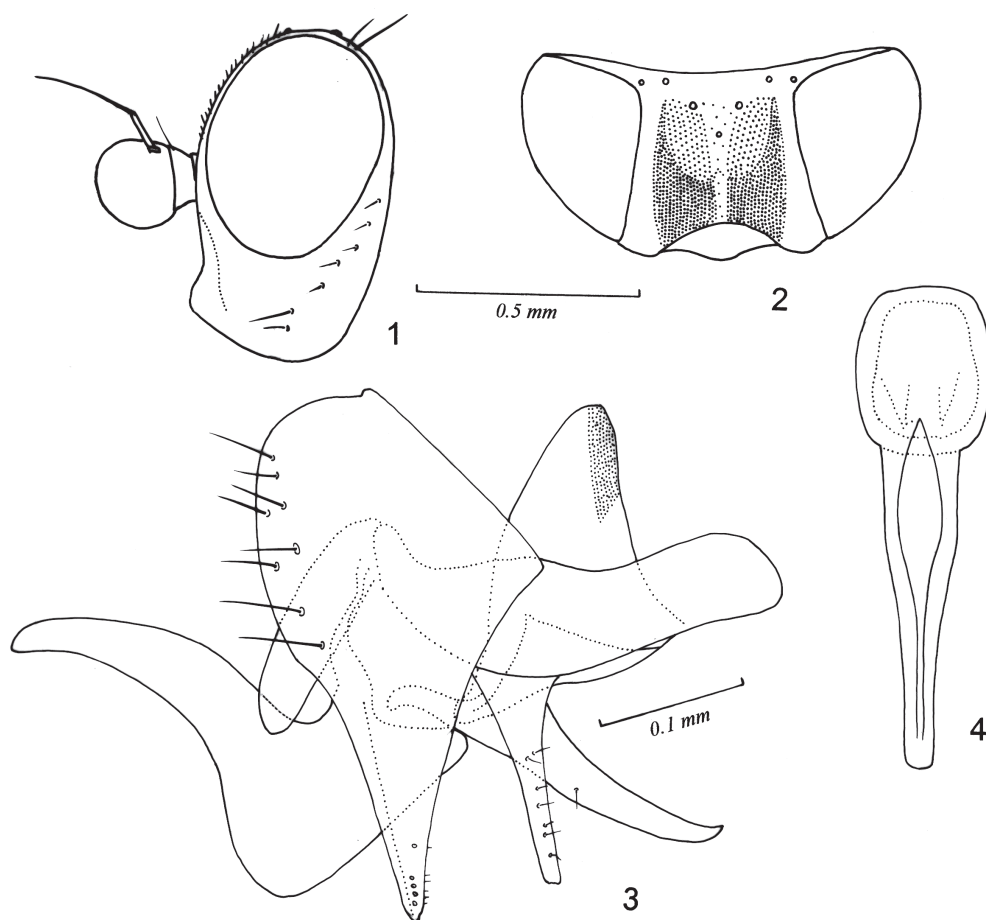
Leucopis canthogena sp. n.
(Figs 1-4)

Holotype. ♂, USA, California, "Modoc Co., Calif. 15.VII.1945", "W.W. Wirth Collector", "Dismal Swamp", slide no. 6956 (NMNH).

Paratypes. USA, Wyoming: 1 ♂, Teton Pass, E. side, 7400-8400', 16.VII.1961, B.H. Poole (CNC); 1 ♂, Battle L. Road, Sierra Madre Range, 8500', 18.VII.1961, B.H. Poole (CNC). Canada, British Columbia: 1 ♂, Ainsworth, 11.VII.1903, R.P. Currie (NMNH).

Description. *Male*. Body length 2.0-2.2 mm. Body light grey. Head (Figs 1-2) 1.6-1.7 times as high as long. Frons widened anteriorly; head 2.4-2.5 times as wide as frons. Orbits silvery-white with short hairs. Ocellar plate cardiform, sharply outlined, distinctly elevated, grey with light interruption in centre, bordered by two dark stripes not fused over lunule. OT index 1.4. Lunule medium-sized, arch-shaped. Antenna and arista black. Eye height 2.7-3.0 times the vertical diameter of basoflagellomere. Third aristomere 3.5 times as long as 2nd one. Gena wide, angular in frontal part; eye 2.4-2.5 times as high as gena; each gena with sparse row of minute bristles; anterior bristle longest.

Mesonotum with goldish brown or brown lateral stripes reaching its apex, grey or dark grey medial stripes extending to its posterior third, and three pairs of dorsocentral bristles; areas between stripes without bristles. Fore legs almost entirely black, only apices of femora and bases of tibiae yellowish. Middle and hind legs with yellow apices of femora, bases of tibiae, and 2-3 proximal tarsomeres. Wing with veins *M* and *R*₄₊₅ con-



Figs 1-4. *Leucopis canthogena* sp. n. **1, 2**, head: from side (1) and above (2); **3, 4**, male genitalia: general view from side (3), aedeagus from below (4).

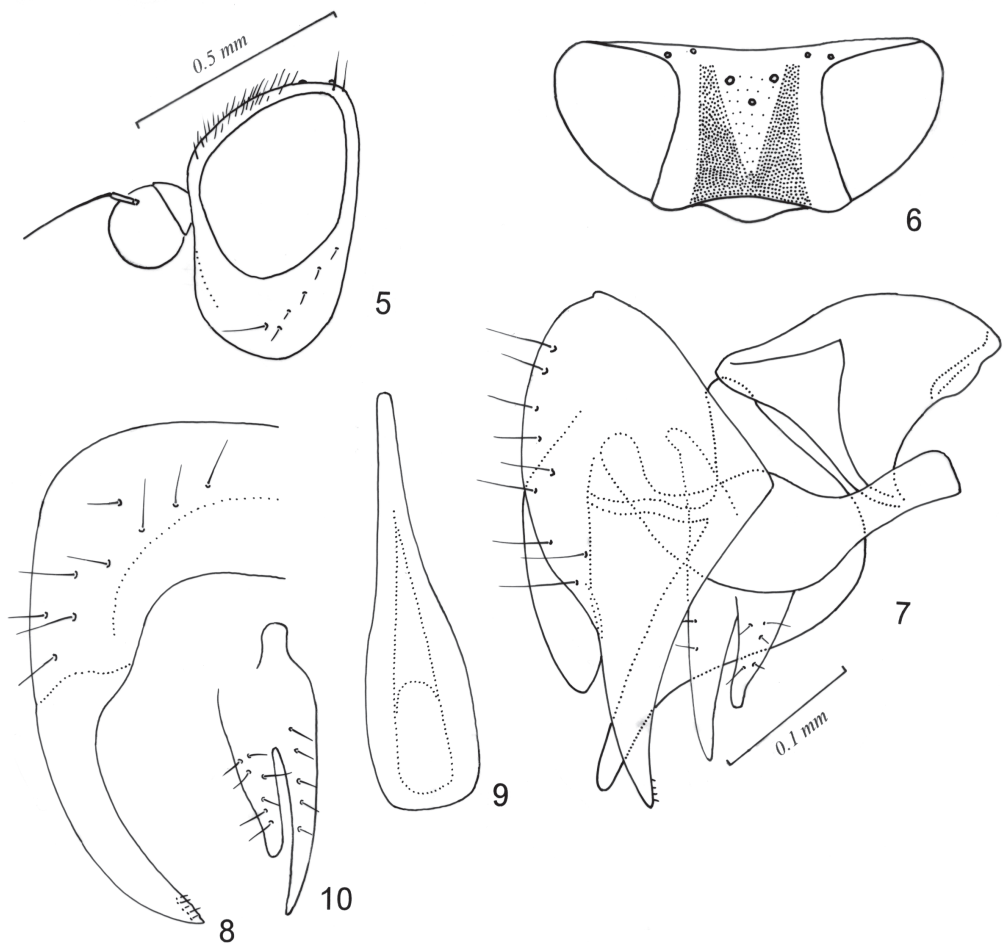
verging in the distal half; distal section of *Cu* 1.2-1.35 times as long as *tp*. Abdominal syntergite 1+2 almost entirely black, with narrow light stripe occupying posterior border and widened at centre; tergite 3 with two rather large dark spots; tergites 4-5 with elongated black spots; fore tergites with dark fields of modified microtrichiae on lower edges.

Genitalia (Figs 3-4). Epandrium medium-sized, with 8-10 pairs of bristles on posterior surface; surstylar lobes beak-shaped, medium-sized. Hypandrium slightly curved, slightly widened in central part. Aedeagus curved in dorsal part, strongly widened in basal third, with narrow, rounded apex. Gonopods slightly smaller than parameres.

Taxonomic notes. The species is closely related to *L. rotundogena* sp. n. The both species have almost identical genitalia; *L. canthogena* is distinguished by the more curved aedeagus, more massive hypandrium, and longer gonopods. In external features of *L. canthogena*, the following variations were observed: the angular fore end of the gena (in profile), elevated ocellar plate and brighter stripes on the mesonotum. Based on the presence of dark fields of modified microtrichiae as well as characters of the genitalia, the both species are included into the *annulipes* group (Tanasijtshuk, 1986).

Distribution. Canada (British Columbia), USA (Wyoming, California).

Biology. Unknown.



Figs 5-10. *Leucopis rotundogena* sp. n. 5, 6, head: from side (5) and above (6); 7-10, male genitalia: general view from side (7), part of epanthrium from behind (8), aedeagus from below (9), gonopods and parameres from below (10).

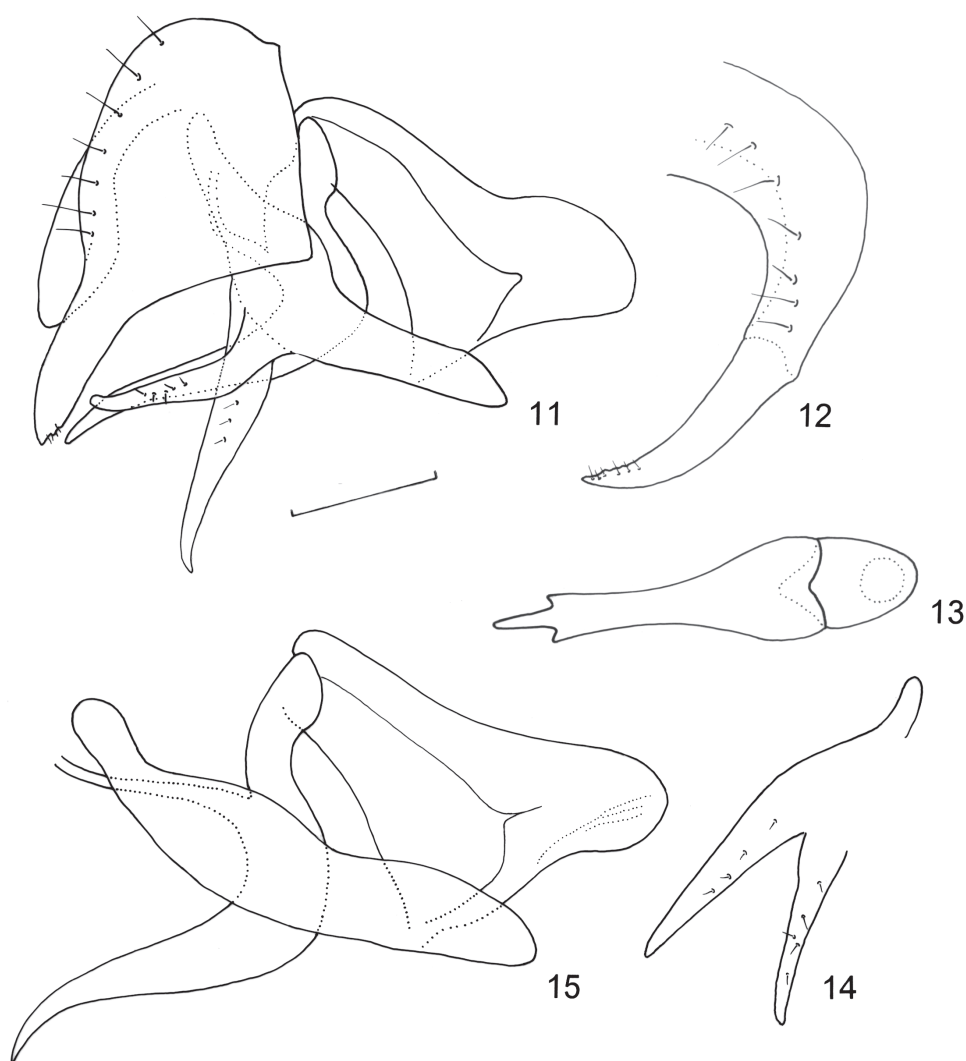
Etymology. Canthus (in Latin) – edge, corner; gena (in Latin) – cheek.

***Leucopis rotundogena* sp. n.**
(Figs 5-10)

Holotype. ♂, USA, New Mexico, “Alamogordo, N.M. May 26, 1964, J.F. McAlpine”, “swept from ornamental shrubs”, slide no. 7230 (CNC).

Paratypes. USA, Washington: 1 ♂, Wawawai, 30.V.1921, A.L. Melander (CNC); Idaho: 1 ♂, Galena Summit, Blain Co., 8600', 15.VII.1961, B.H. Poole (CNC); Utah: 1 ♂, Daniel Pass, 2 miles S of Wasatch Co., 8500', 9.VII.1961, J.G. Chillcotti (CNC); Colorado: 1 ♂, Boulder, 5500', 16.VI.1961, W.R.M. Mason (CNC); 1 ♂, Valmont Butte, 5300', Boulder, 7.VI.1961, C.H. Mann (CNC); Arizona: 1 ♂, Williams, “29.5” [?], H. Barber (NMNH).

Description. Male. Body length 1.9-2.3 mm. Body light grey. Head (Figs 5-6) 1.5-1.6 times as high as long, rounded on underside in profile. Frons widened anteriorly; head 2.3-2.7 times as wide as frons. Orbits silvery-white, with rather long white hairs. Ocellar plate long, triangular, light, almost at same level as frons surface. Small arch-shaped spots often developed on sides of anterior ocellus. Ocellar plate bordered by two dark stripes fused above lunule. OT index 1.3-1.5. Lunule medium-sized, arch-shaped. Antenna and arista black. Eye height 2.4-2.7 times the vertical diameter of basoflagellomere. Third aristomere 3.5-4.5 times as long as 2nd one. Gena wide; eye 2.1-2.5 times as high as gena. Each gena with sparse row of minute bristles; anterior bristle much longer than others. Palpi black.



Figs 11-15. *Leucopis ankophalla* sp. n., male genitalia. **11**, general view from side; **12**, part of epandrium from behind; **13**, aedeagus from below; **14**, gonopods and parameres from below; **15**, variation of genitalia without epandrium from side.

Mesonotum with lateral stripes reaching last pair of dorsocentral bristles, goldish; intensity of this colour varied from light to almost bright. Grey medial stripes reaching posterior third of mesonotum; their intensity varied also. Areas between stripes without bristles. Two pairs of dorsocentral bristles developed (specimen from Daniel Pass with three pairs). Fore legs entirely black; middle and hind legs with yellow apices of femora, bases of tibiae, and 1-2 proximal tarsomeres. Wing veins *M* and *R*₄₊₅ converging in

distal half; distal section of *Cu* 1.4-1.6 times as long as *tp*. Abdominal syntergite 1+2 almost entirely black, only with a narrow light stripe at posterior border; tergite 3 with two medium-sized dark spots; tergites 4 and 5 or only the latter one with elongated black spots; fore abdominal tergites with dark fields of modified microtrichiae on lateral edges.

Genitalia (Figs 7-10). Epandrium medium-sized, with 8-10 pairs of bristles on posterior surface; surstylar lobes beak-shaped, medium-sized.

Hypandrium curved, widened in central part. Aedeagus with narrow base, strongly widened in basal third, with narrow, rounded apex. Gonopods slightly smaller than parameres.

Taxonomic notes. See notes on *L. canthogena* sp. n.

Distribution. USA (Washington, Idaho, Utah, Colorado, Arizona, New Mexico).

Biology. Unknown.

Etymology. Rotundus (in Latin) – round, gena (in Latin) – cheek.

***Leucopis ankophalla* sp. n.**
(Figs 11-15)

Holotype. ♂, USA, Oregon, “Chiloquin Ore. VI-25-60”, “E.I. Schlinger Collector”, “Predacious upon *Capitophorus* sp. 60-7-28”, “E.I. Schlinger”, slide no. 7173 (CNC).

Paratypes. USA, California: 1 ♂, Thousand Palms, 26.IV.1955, W.R.G. Mason (CNC); 1 ♂, Apple Valley, 10.V.1955, W.R. Richards (CNC).

Description. Male. Body length 1.8-2.2 mm. Body grey. Head 1.4-1.7 times as high as long. Frons slightly widened anteriorly; head 2.9 times as wide as frons. Ocellar plate long, triangular, not elevated, distinct because of lighter grey coloration. Orbital stripes light, nearly white. Frons with two dark stripes along frontal stripe towards lunule and one more stripe between them. Orbits with small rare hairs. OT index 1.5-1.6. Lunule small, semicircular. Antenna and arista black. Eye height 2.7-3.0 times the vertical diameter of basoflagellomere. Third aristomere 2.2-2.5 times as long as 2nd one. Eye 3.6-4.0 times as high as gena. Gena with sparse row of minute bristles, anteriormost bristle largest. Palpi black.

Mesonotum with bright, dark brown lateral stripes extending to posterior dorsocentral bristles and dark grey medial stripes extending to the middle of mesonotum. Areas between stripes devoid of bristles as far as middle of mesonotum. Three pairs of dorsocentral bristles developed. Legs black with yellow apices of femora, bases of tibiae, 2-3 proximal tarsomeres. Wing vein *M* slightly converging with vein R_{4+5} in apical half; distal section of *Cu* 1.2-1.6 times as long as *tp*. Abdomen with a large spot covering 2/3 of syntergite 1+2; tergite 3 with two small round black spots; tergites 4 and 5 with black dots; fore tergites with dark fields of modified microtrichiae on lateral edges.

Genitalia (Figs 11-15). Epandrium medium-sized, with 7-8 pairs of bristles on posterior surface; surstylar lobes rather wide in profile. Hypandrium widened behind middle. Aedeagus S-shaped, with wide base of spermatheca, narrow base and apex notched in dorsoventral projection; aedeagal apodeme long. Gonopods slightly smaller than parameres.

Taxonomic notes. The species is characterized by three pairs of *dc*, bright lateral stripes on the mesonotum, and peculiar form of the aedeagus and aedeagal apodeme. Based on the presence of dark fields of modified microtrichiae on the edges of the fore abdominal tergites, as well as characters of the genitalia, this species is placed in the *annulipes* group.

Distribution. USA (Oregon, California).

Biology. Larvae prey on *Capitophorus*.

Etymology. Ankos (in Greek) – bend, curve; phallus – synonym of aedeagus.

***Leucopis saliceti* sp. n.**
(Figs 16-21)

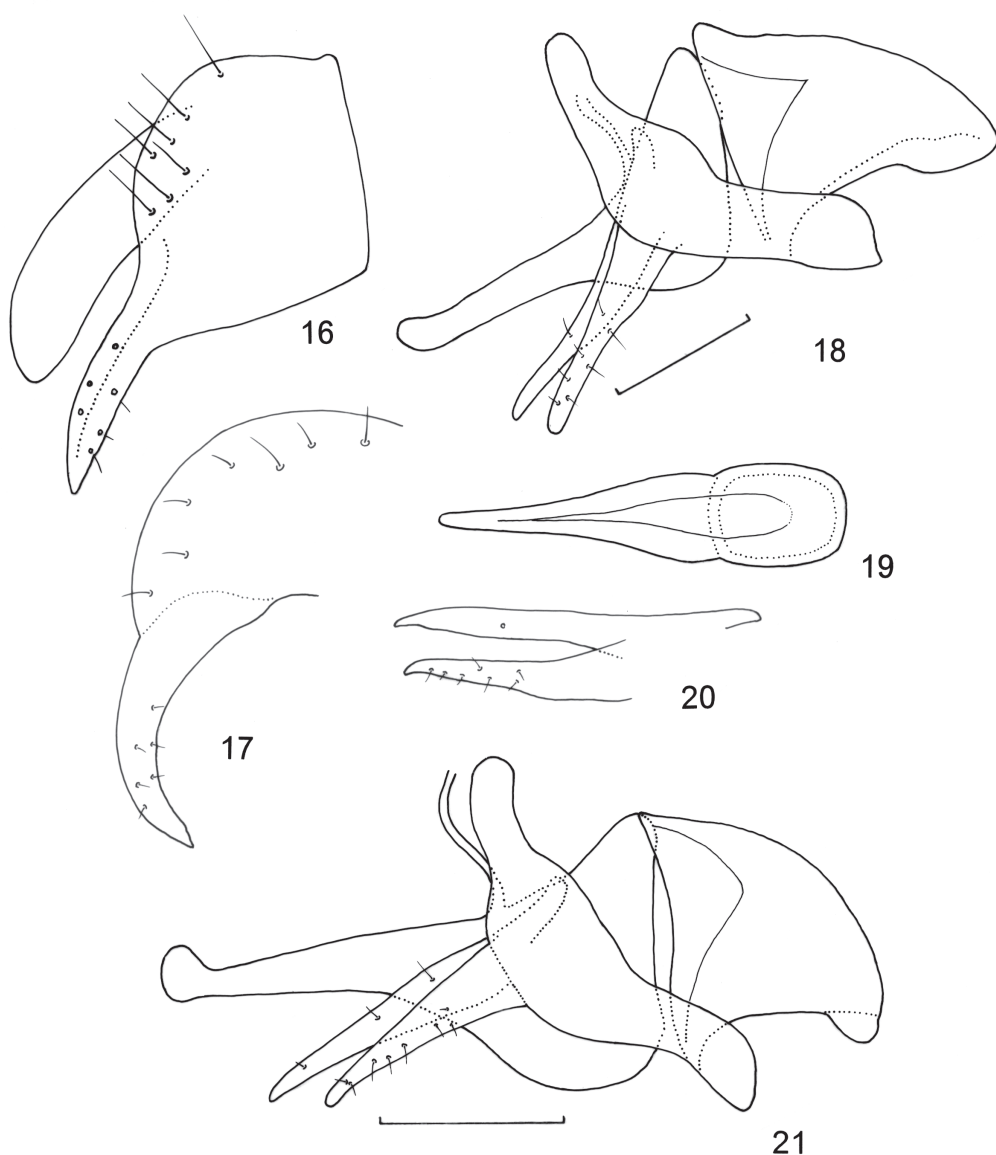
Holotype. ♂, USA, California, “Redwood City Cal. San Mateo County, Aug. 20, 1949. P.H. Arnaud, Jr.”, “*Leucopis americana* Mall. det. Sabrosky”, slide no. 7006 (NMNH).

Paratype. ♂, USA, California, “Riverside Cal. IX-17 – 1957, host aphid *Chaitophorus viminalis*, aphid host *Salix*”, E.I. Schlinger (CNC).

Description. Male. Body length 1.8-2.0 mm. Body grey. Head 1.8 times as high as long. Frons widened anteriorly; head 3 times as wide as frons. Ocellar plate drop-shaped, well outlined. Frontal stripe dark grey with lighter centre when observed from above and monotonous grey from front. OT index 1.2-1.3. Lunule medium-sized, with upper edge slightly curved. Antenna and arista black. Eye height 3.0-3.2 times the vertical diameter of basoflagellomere. Third aristomere 3.3 times as long as 2nd one. Eye 4.0-4.8 times as high as gena. Gena with minute bristles arranged in single sparse row; anterior bristle considerably larger than others.

Mesonotum with wide, brown, not bright lateral stripes extending to posterior edge and dark grey medial stripes extending over middle of mesonotum. Areas between stripes devoid of bristles to middle of mesonotum. Two pairs of dorsocentral bristles developed. Scutellum with goldish tint. Legs black with yellow apices of femora, bases of tibiae, base of fore leg and 2-3 proximal tarsomeres of middle and hind legs. Wing vein *M* slightly converging with vein R_{4+5} in distal third; distal section of *Cu* 1.3 times as long as *tp*. Abdominal syntergite 1+2 black in basal 2/3; tergite 3 with two rather small black spots; tergites 4 and 5 each with single small black spot in basal part; abdominal bristles with black dots on their bases; fore tergites with dark fields of modified microtrichiae on lateral edges.

Genitalia (Figs 16-21). Epandrium with 7-8 pairs of bristles on posterior surface, passing into beak-shaped surstylar lobes with distinct constriction; surstylar lobes with small bristles along whole length. Cerci noticeably longer than in most species of the genus. Hypandrium of usual



Figs 16-21. *Leucopis saliceti* sp. n., male genitalia. **16**, epandrium and cerci from side; **17**, part of epandrium from behind; **18**, genitalia without epandrium from side; **19**, aedeagus from below; **20**, gonopods and parameres from below; **21**, variation of male genitalia without epandrium from side.

shape for the genus, with a widening near centre. Aedeagus widened near base, with apex rounded in profile.

Taxonomic notes. The species is characterized by several external features: a grey frontal stripe, wide lateral stripes reaching the posterior end of the mesonotum, and the goldish tint on the scutellum. Characters of the male genitalia are

distinct as well. Bristles are situated on surstilar lobes not only near the apex, but also along almost the whole length; cerci are long; the apex of the aedeagus in profile is widely rounded. Based on the presence of dark fields of modified microtrichiae on edges of the fore tergites, as well as characters of the genitalia, this species is placed in the *annulipes* group.

Distribution. USA (California).

Biology. Predator of *Chaitophorus viminalis* Monell.

Etymology. *Salix* (in Latin) – willow.

***Leucopis schlingeri* sp. n.**
(Figs 22-28)

Holotype. ♂, USA, California, “Riverside Cal., VIII-10, 1959”, “E.I. Schlinger collector”, “Primary parasite reared from *Thecabius populi-monilis*. E.I. Schlinger”, “Aphid host plant *Populus trichocarpa*” (CNC).

Paratypes. USA, California: 11 ♂, 19 ♀, same data as for holotype (CNC and ZIN); 4 ♂, 5 ♀, same place, aphid and collector, but “VIII.28, 1959, *Populus* sp.” (CNC); 1 ♂, 2 ♀, same place and collector, but “VII.25, 1958, *Pemphigus* sp., *Populus trichocarpa*” (CNC); 1 ♂, same place and collector, but “XI.10, 1960, predacious upon *Chaitophorus* sp.” (CNC); 2 ♀, Putah Creek, 3 miles down Monticello Dam, Yolo Co., 29.VII and 2.VIII.1959, “ex *Pemphigus pseudogall* on cottonwood”, L.E. Caltagirone (CNC).

Description. Male and female. Body length 1.6-2.0 mm. Body light grey. Head (Figs 22-23) 1.4-1.6 times as high as long. Frons slightly widened anteriorly; head 3.2-3.6 times as wide as frons. Orbital stripes nearly white. Ocellar plate slightly raised, light grey, long, triangular. Frontal stripe grey, but appearing nearly white when observed from front. Anterior ocellus sometimes smaller than posterior ones. Lunule medium-sized, arch-shaped. OT index 1.0-1.3. Antenna black, arista brown. Eye height 3.0-3.6 times the vertical diameter of basoflagellomere. Third aristomere 3.5-5.0 times as long as 2nd one. Gena narrow; eye 5.0-6.5 times as high as gena. Gena with 2-3 small and one larger bristle. Palpi black.

Mesonotum light grey, sometimes with light goldish tint. Pale grey-brown or goldish lateral stripes extending to posterior pair of dorsocentral bristles. Medial stripes often absent, but if present, only near anterior edge of mesonotum; in either case, their position marked by rows of sparsely arranged small bristles. Two pairs of dorsocentral bristles developed. Femora black with yellow apices; tibiae and tarsi yellow. Wing veins *M* and R_{4+5} slightly converging in distal half; distal section of *Cu* 1.3-1.7 times as long as *tp*. Abdomen satin white; syntergite 1+2 with wide light brown spot; tergite 3 usually with a pair of light grey spots, but these spots often absent; in male, fore tergites with elongated dark fields of modified microtrichiae on lower edges.

Male genitalia (Figs 24-28). Epandrium with 3-4 pairs of bristles on posterior surface, passing into surstilar lobes with noticeable constriction; surstilar lobes moderately long, beak-shaped. Hypandrium slightly curved, not widened. Aedeagus widened in basal third, with rather sharp apex.

Taxonomic notes. This species has a number of distinctive external characters: narrow gena,

pale lateral stripes of mesonotum, absence of medial stripes, yellow tibiae and tarsi. The most obvious characters of the genitalia are the small quantity of bristles on the epandrium, and the hypandrium not widened near centre. The shape of the aedeagus in *L. schlingeri* is rather common for many species. The determination of *L. schlingeri* is easy owing to the presence of dark fields on lower edges of the fore abdominal tergites. According to the characters of genitalia and presence of fields of modified microtrichiae, this species belongs to the *annulipes* group.

Distribution. USA (California).

Biology. Predator on *Thecabius populimonilis* (Riley) and *Pemphigus* sp.

Etymology. The species is named in honour of Evert I. Schlinger, the dipterist and collector of most of the type series.

***Leucopis velutinifrons* sp. n.**
(Figs 29-34)

Holotype. ♂, Canada, British Columbia, “Spring Creek Terrace, B.C., 11.VI.1960. C.H.

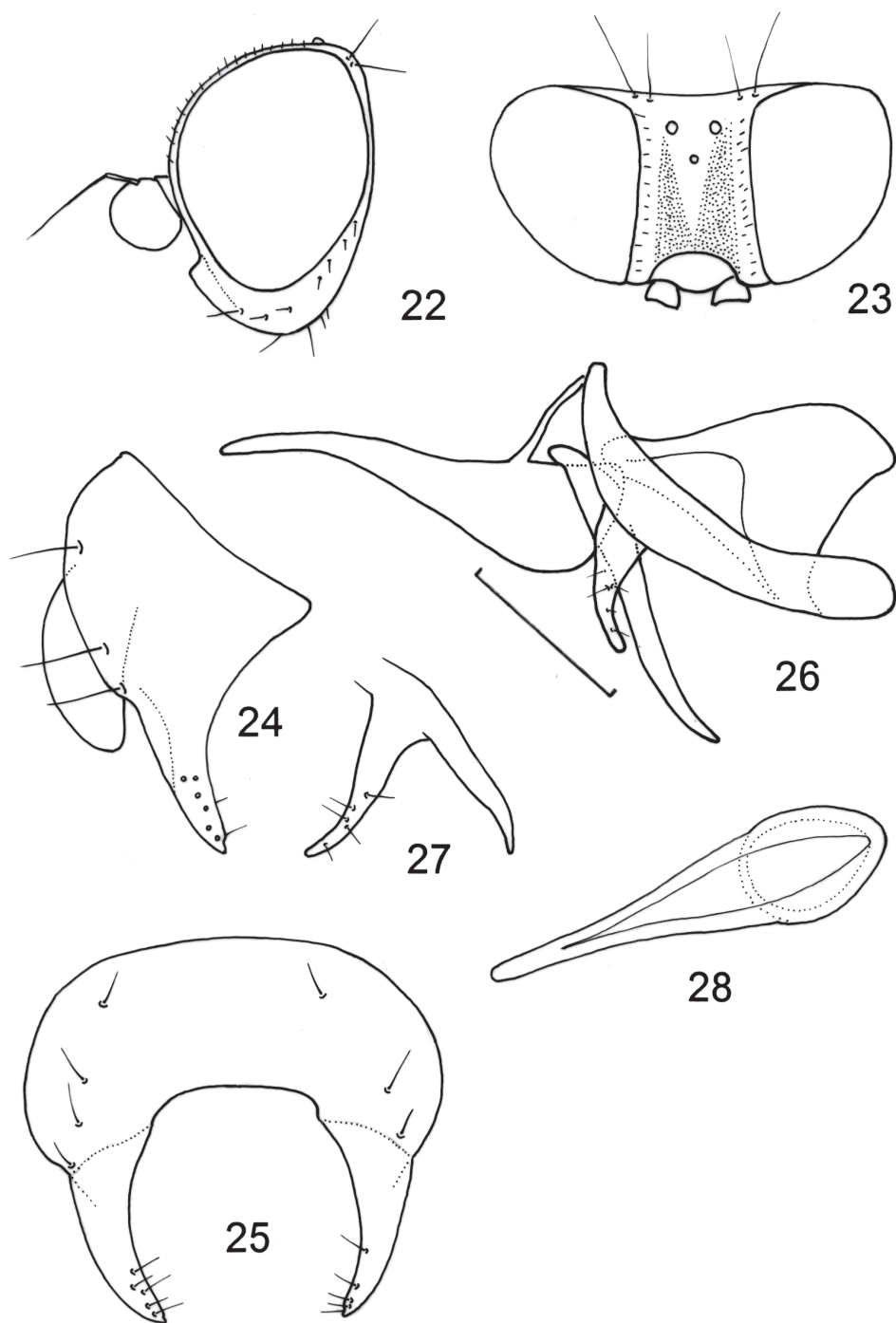
Mann”, slide no. 7231 (CNC).

Paratypes. USA, Washington: 1 ♂, Valley Ford, 19.VI.1919, A.L. Melander (CNC); Colorado: 1 ♂, Mud-dy Pass, Jackson Co., 8800', 15.VIII.1961, B. Poole (CNC).

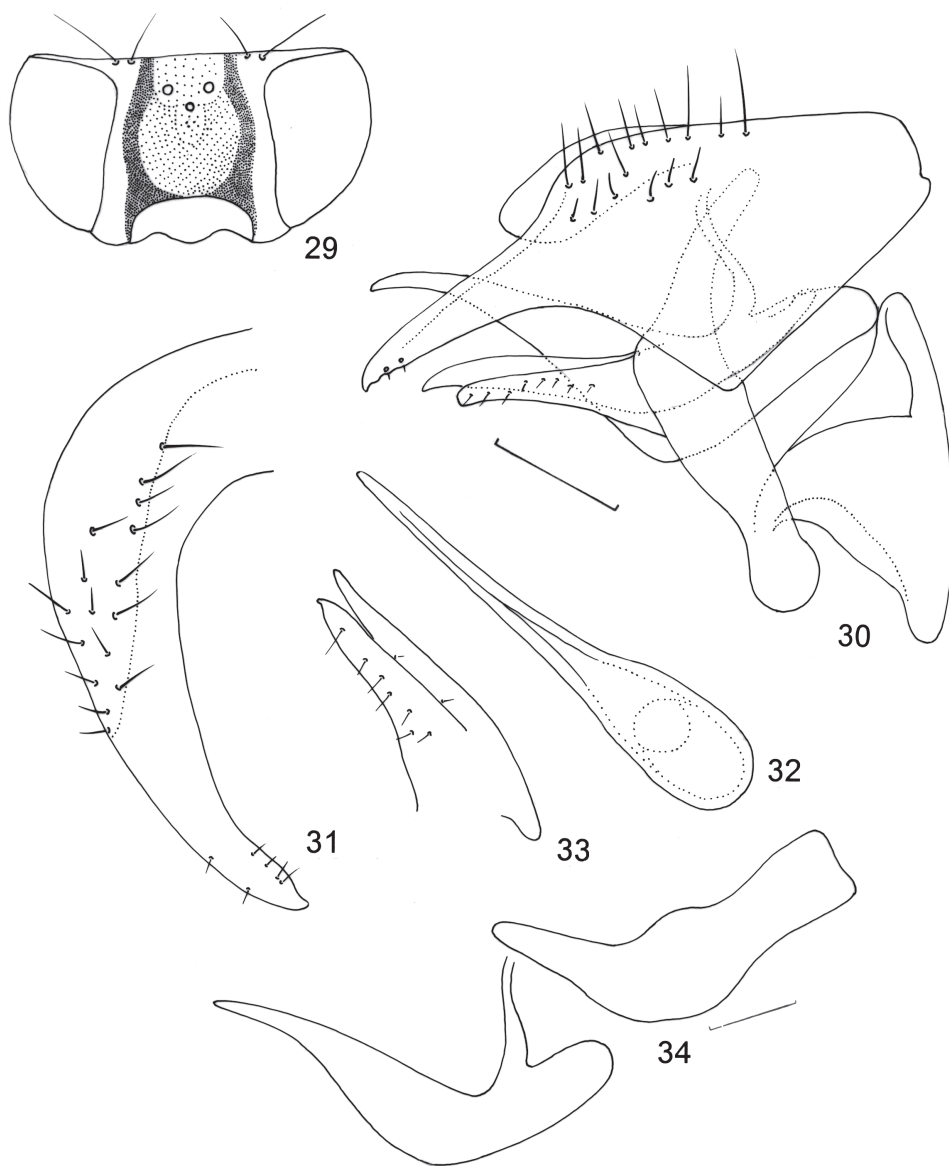
Description. Male. Body length 2.3-3.0 mm. Body light grey. Head 1.6-1.75 times as high as long.

Frons (Fig. 29) widened anteriorly; head 2.25-2.45 times as wide as frons. Orbits silvery-grey. Ocellar plate very large, elongated to lunule, grey from above, velvet white in profile, bordered by two dark stripes fused dorsal of lunule. OT index 1.4-1.8. Lunule wide, with upper border almost straight. Antenna and arista black. Eye height 3.0-3.3 times the vertical diameter of basoflagellomere. Third aristomere 3.0-3.3 times as long as 2nd one. Eye 2.2-2.5 times as high as gena. Each gena with two irregular rows of small bristles; one of anterior bristles longer than others.

Mesonotum with lateral stripes goldish brown, not bright, indistinct, extending to posterior dorsocentral bristles. Grey medial stripes varied: sometimes they distinct, reaching posterior third of mesonotum, with areas between stripes without small bristles (specimen from Colorado with stripes only in first 1/4 of mesonotum and areas between stripes indistinct). Two pairs of dorsocentral bristles developed. Femora black with yellow apices; tibiae black with yellow bases (specimen from Colorado with apices of tibiae yellow as well); 2-3 proximal tarsomeres yellow, other ones black. Wing veins *M* and R_{4+5} parallel or slightly converging in distal half; distal section of *Cu* 1.2-1.6 times as long as *tp*. Abdomi-



Figs 22-28. *Leucopis schlingeri* sp. n. 22-23, head: from side (22) and above (23); 24-28, male genitalia: epandrium and cerci from side (24), epandrium from behind (25), genitalia without epandrium from side (26), gonopods and parameres from below (27), aedeagus from below (28).

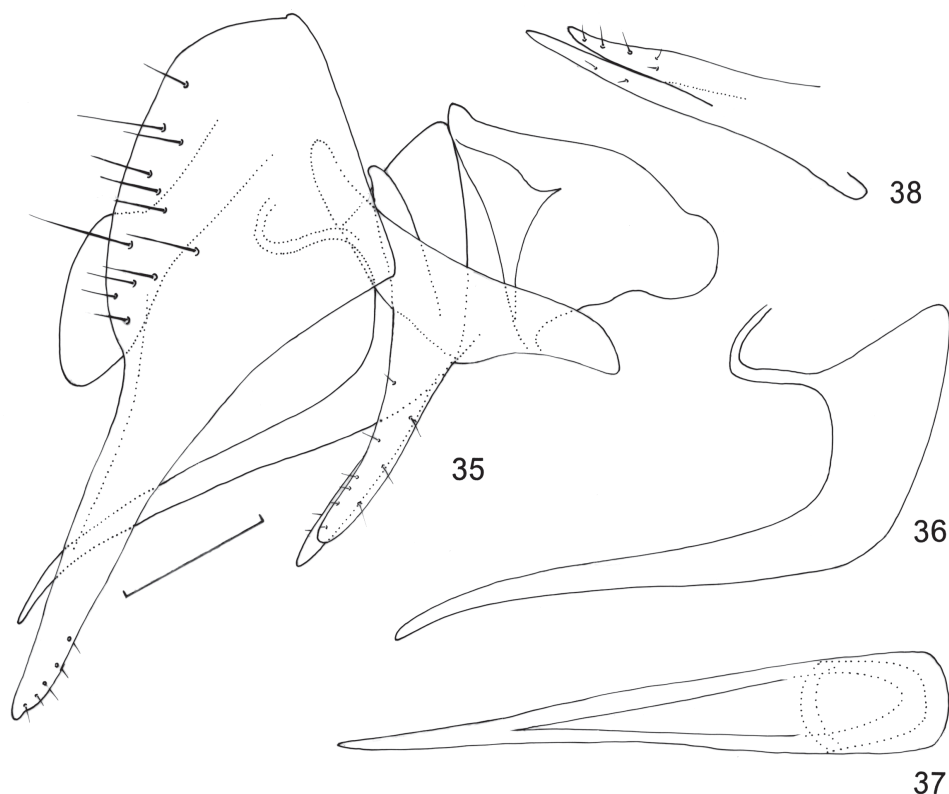


Figs 29-34. *Leucopis velutinifrons* sp. n. **29**, head from above; **30-34**, male genitalia: general view from side (30), part of epandrium from behind (31), aedeagus from below (32), gonopods and parameres from below (33), variation of aedeagus and hypandrium from side (34).

nal syntergite 1+2 dark in anterior 3/4, with a light stripe occupying posterior margin and widened at centre; tergite 3 with two dark spots varying in size; tergites 4-5 with elongated median black spots; fore tergites with dark fields of modified microtrichiae on lower edges. Genitalia (Figs 30-34). Epandrium large, with 13-15 pairs

of bristles on posterior surface; surstilar lobes beak-shaped, rather small in profile. Hypandrium slightly curved, widened near centre. Aedeagus not wide, slightly curved in profile, with sharp apex. Gonopods slightly smaller than parameres.

Taxonomic notes. The distinctive external features of the new species are vast ocellar plate



Figs 35-38. *Leucopis dislineata* sp. n., male genitalia. **35**, general view from side; **36**, aedeagus from side; **37**, aedeagus from below; **38**, gonopods and parameres from below.

and wide gena. The male genitalia are characterized by the rather numerous bristles on the epanthrium, relatively small surstylar lobes, and peculiar shape of the aedeagus. According to the characters of genitalia and presence of fields of modified microtrichiae, this species belongs to the *annulipes* group.

Distribution. Canada (British Columbia), USA (Washington, Colorado).

Biology. Unknown.

Etymology. Velutinus (in Latin) – velvety.

Species group *glyphinivora*

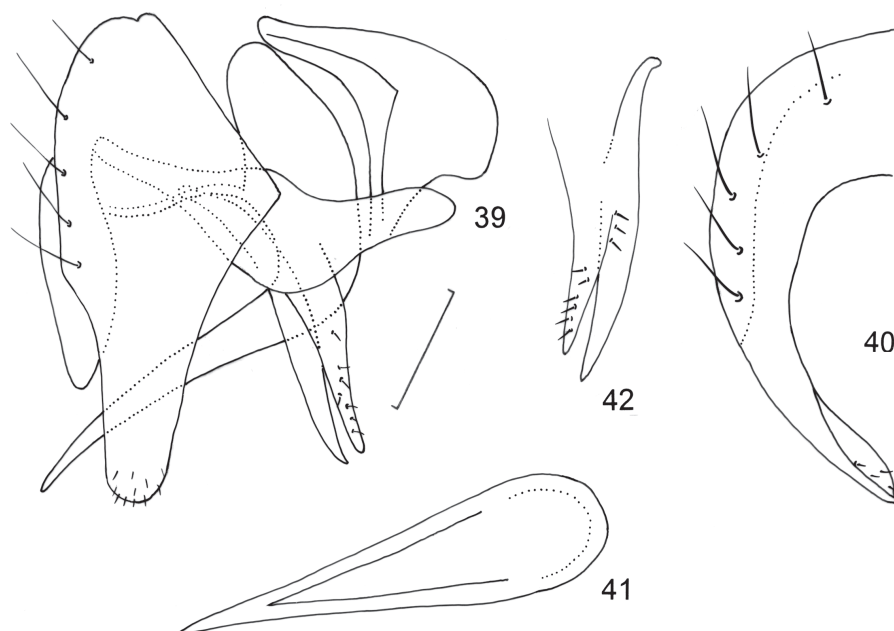
***Leucopis dislineata* sp. n.**
(Figs 35-38)

Holotype. ♂, USA, New Mexico, "New Mexico, Jemenez Springs, 4 July 1953. W.W. Wirth collector", slide no. 6966 (NMNH).

Description. Male. Body length 1.7 mm. Body light grey. Head 1.5 times as high as long. Frons widened anteriorly; head 2.9 times as wide as

frons. Orbits light grey. Ocellar plate medium-sized, drop-shaped, without frontal interruption. Head with two dark grey stripes along frontal stripe towards lunule; these stripes with indistinct inner edges. OT index 1.4. Lunule medium-sized, arch-shaped. Antenna and arista black. Eye height 3 times the vertical diameter of basoflagellomere. Third aristomere 3.6 times as long as 2nd one. Eye 2.6 times as high as gena. Gena with sparse row of minute bristles; anterior bristle larger than others. Palpi black.

Mesonotum without dark stripes, but with small bristles arranged in rows reminiscent of such stripes. Two pairs of dorsocentral bristles developed. Femora black with yellow apices; tibiae and tarsi yellow. Wing veins *M* and *R*₄₊₅ slightly converging in distal half; distal section of *Cu* 1.3 times as long as *tp*. More than half of abdominal sytergite 1+2 occupied by dark spot with narrowed central part; other tergites without spots; lower edges of fore tergites without dark fields of modified microtrichiae.



Figs 39-42. *Leucopis philoisios* sp. n., male genitalia. **39**, general view from side; **40**, part of epandrium from behind; **41**, aedeagus from below; **42**, gonopods and parameres from below.

Genitalia (Figs 35-38). Epandrium with more than 10 pairs of bristles on posterior surface, passing into surstilar lobes with noticeable constriction; surstilar lobes extremely long. Hypandrium short. Aedeagus smoothly curved, very thin and long.

Taxonomic notes. The external characters are distinctive: the mesonotum without stripes, tibiae and tarsi yellow, dark fields on lower edges of fore tergites absent. The shape of genitalia is very characteristic: long surstilar lobes, short hypandrium, long and thin aedeagus. According to the characters of genitalia and absence of fields of modified microtrichia, this species belongs to the *glyphinivora* group.

Distribution. USA (New Mexico).

Biology. Unknown.

Etymology. Dis (in Latin) – without, linea (in Latin) – line.

Species group *palumbi*

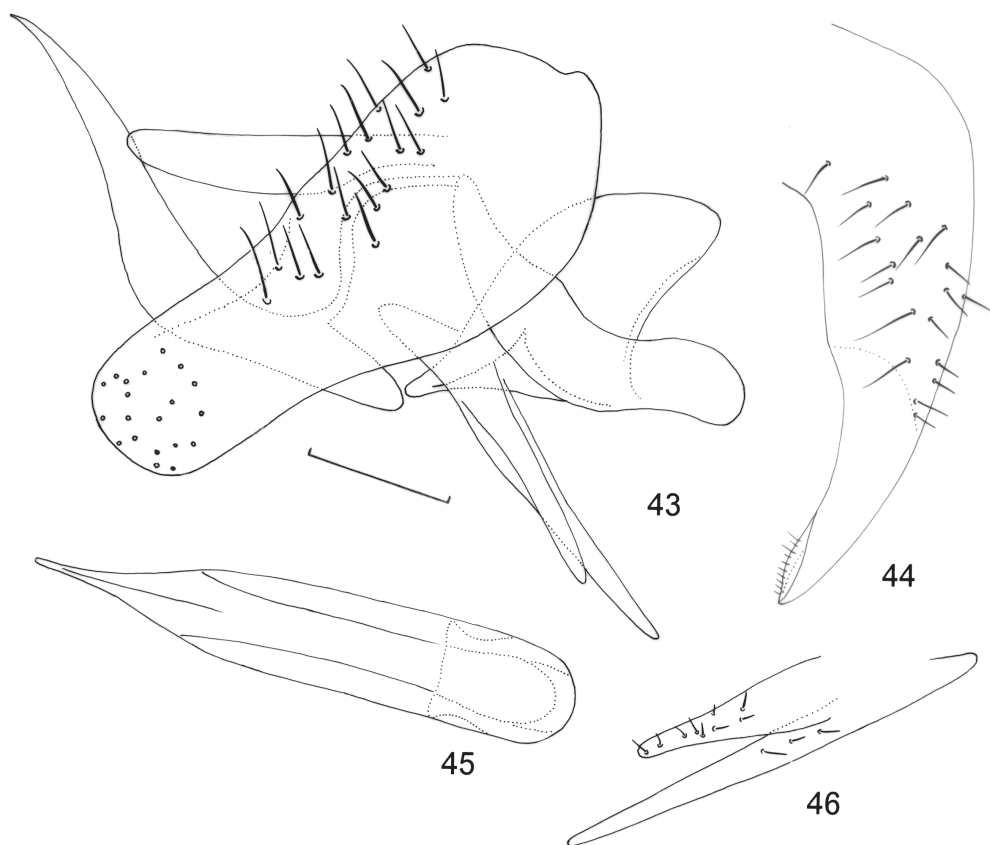
Leucopis philoisios sp. n. (Figs 39-42)

Holotype. ♂, USA, California, “Redwood City, Cal. San Mateo County, aug. 20, 1949, P.H. Arnaud Jr.”, “*Leucopis americana* Mall. det. Sabrosky”, slide no. 7006 (CNC).

Paratype. ♂, USA, California, Riverside, 17.IX.1957, host aphid *Chaitophorus viminalis*, aphid host plant *Salix*, E.I. Schlinger (CNC).

Description. **Male.** Body length 9-2.1 mm. Body light grey. Head 1.6-1.7 times as high as long. Frons widened anteriorly; head 2.7-2.8 times as wide as frons. Orbits silvery-white. Ocellar plate long, drop-shaped, grey. Head with two dark grey stripes along frontal stripe towards lunule and grey stripe between them; outer stripes with indistinct inner edges. OT index 1.5-1.6. Lunule rather small, semicircular. Antenna and arista black. Eye height 3.3 times the vertical diameter of basoflagellomere. Third aristomere 3.3 times as long as 2nd one. Eye 3.2 – 3.4 times as high as gena. Each gena with a row of minute bristles; anterior bristle noticeably larger than others. Palpi black.

Mesonotum with brown lateral stripes extending to posterior pair of dorsocentral bristles and dark grey medial stripes occupying 1/3 of mesonotum, but continued by rows of small bristles near posterior edge of mesonotum. Areas between stripes without bristles. Two pairs of dorsocentral bristles developed. Femora black with yellow apices; tibiae black with yellow bases; fore basitarsus black or only partly yellow, other tarsomeres black; 2-3 proximal tarsomeres of middle and hind legs yellow. Wing veins *M*



Figs 43-46. *Leucopis aglaia* sp. n., male genitalia. **43**, general view from side; **44**, part of epandrium from behind; **45**, aedeagus from below; **46**, gonopods and parameres from below.

and R_{4+5} parallel or slightly converging; distal section of *Cu* 1.5 times as long as *tp*. Abdominal syntergite 1+2 with dark grey spot occupying its 2/3; tergite 3 with black paired spots of medium or small size; in one specimen, tergite 4 with black touch; lower edges of fore tergites without dark fields of modified microtrichiae.

Genitalia (Figs 39-42). Epandrium with 5-6 pairs of bristles on its posterior surface, smoothly tapering into wide surstilar lobes rounded at apex. Hypandrium with characteristic widening near centre and remaining distal part narrow. Aedeagus widened in basal part, curved and smoothly narrowed to sharp apex.

Taxonomic notes. The species is characterized by the following external features: long ocellar plate, rather wide gena, dark fore legs, and absence of dark fields of modified microtrichiae on abdomen. The shape of genitalia is very characteristic, in particular, wide apices of surstilar

lobes, peculiar shape of the hypandrium, and curved aedeagus with sharp apex. According to the shape of the hypandrium, absence of dark fields on edges of tergites, and the mode of life, this species is placed in the *palumbi* group.

Distribution. USA (California).

Biology. Predator of *Chaitophorus viminalis* Monell on *Salix*. Probably narrow oligophage.

Etymology. Philos (in Greek) – friend, oisos (in Greek) – willow.

***Leucopis aglaia* sp. n.**
(Figs 43-46)

Holotype. ♂, **Canada**, *British Columbia*, “Shames, B.C. 16 miles S.W. Terrace, 4.VI.1960, J.G. Chillcott”, “river bank scrub” (CNC).

Paratypes. 2 ♂, **Canada**, *British Columbia*, “Contact Cr. B.C., 52-3090-05”, 28.III.1953, *Populus* sp., F.I.S. (CNC). One paratype damaged: head missing, wings deformed.

Description. Male. Body length 2.0–2.1 mm. Body light grey. Head 1.4–1.5 times as high as long. Frons slightly widened anteriorly; head 3.0–3.15 times as wide as frons. Orbits silvery-white. Ocellar plate long, triangular, silvery-grey. Frontal stripe grey. On frons, rather long silvery hairs visible in profile. OT index 1. Lunule small, semicircular. Antenna and arista black. Eye height 3.3–3.7 times the vertical diameter of basoflagellomere, 3.8–4.0 times the gena height. Third aristomere 3.0–4.0 times as long as 2nd one. Each gena with one longish and 1–2 small bristles. Palpi black.

Mesonotum with lateral stripes hardly visible by colour; they evident mainly by presence of rows of small bristles. Grey medial stripes slightly darker, marked by rows of bristles as well. Areas between stripes without small bristles. Two pairs of dorsocentral bristles developed. Femora black with yellow apices; tibiae yellow with darkening in middle; tarsi yellow, last tarsomere sometimes dark. Wing veins *M* and R_{4+5} remarkably converging in apical half; distal section of *Cu* 1.2–1.3 times as long as *tp*. Abdomen with dark brown spot divided medially and almost completely occupying syntergite 1+2; tergite 3 with paired, medium-sized, dark brown spots; tergites 4 and 5 with black touches; fore tergites without dark fields of modified microtrichiae.

Genitalia (Figs 43–46). Epandrium massive, with 18–20 pairs of bristles on posterior surface; surstilar lobes very wide (nearly as wide as basal part of epandrium in profile), with smoothly rounded apices. Hypandrium relatively small, smoothly curved. Aedeagus narrow, with sharp apex, slightly widened in central part. Gonopods much smaller than parameres.

Taxonomic notes. Undisputably, the species is closely related to *L. philoisos* sp. n. considering the similarity in the shape of surstilar lobes, hypandrium and aedeagus. However, the distinctions in these structures are clear: *L. aglaia* has a greater number of bristles on epandrium, broader surstilar lobes, thinner base of aedeagus, and longer posterior parameres. External features are also different: *L. aglaia* is characterized by the indistinct lateral stripes, lighter legs, triangular ocellar plate, and other smaller differences. This species is placed in the *palumbi* group.

Distribution. Canada (British Columbia).

Biology. Unknown.

Etymology. *Aglaia* (in Greek) – beauty.

Species group *charactophalla*

Leucopis charactophalla sp. n. (Figs 47–52)

Holotype. ♂, USA, Texas, “Big Bend N.P. Tex. Green Gulch 5000’ May 14, 1959”, “Bottimer”, slide no. 7359 (CNC).

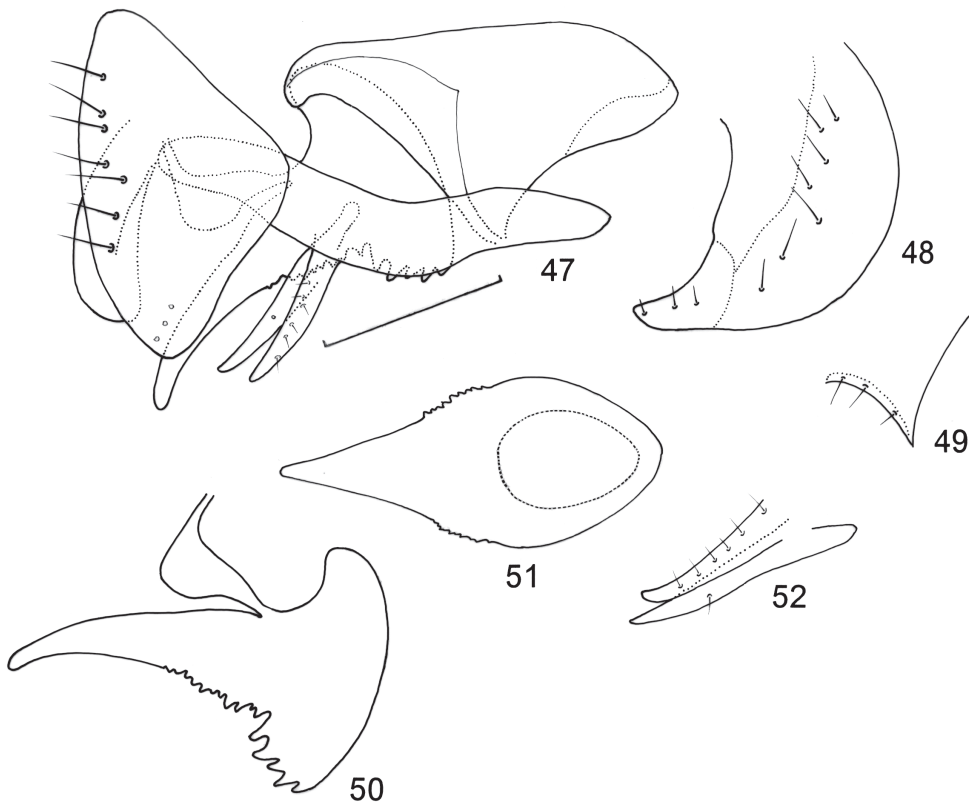
Paratypes. USA, California: 2 ♂, Snow Creek, 1500’, White Waters, 16.III.1955, W.R. Richards (CNC); 1 ♂, Coyote Creek, Riv. Co., 22.III.1963, “ex *Aphis medicaginis* on Ocotillo”, E.I. Schlinger (CNC); 1 ♂, Bakersfield, Kern Co., 22.VII.1958, E.I. Schlinger, reared from 23.VII.1958 *Aphis pumi* (CNC); Texas: 1 ♂, Big Bend N.P. Santa Elena Can. 2100’, 5.V.1959, swept from *Zyziphus* flowers, J.F. McAlpine (CNC); 1 ♂, Sanderson, 28–29.IV.1959, at aphid colony on flowers of bull thistle (*Cirsium lanceolatum*), J.F. McAlpine (CNC); 1 ♂, Judge Bean’s Pk, Langtry, 28.IV.1959, at aphid colony on *Yucca*, J.F. McAlpine (CNC). Mexico: 1 ♂, Tamaulipas, Padilla, ej. J.Silva Sanchez, Naranja Valencia, 7.IV.1995, G. Gaona (NMNH).

Description. Male. Body length 1.5–2.1 mm. Body light grey. Head 1.55–1.7 times as high as long. Frons widened anteriorly; head 2.7–3.1 times as wide as frons. Orbits silvery-white. Ocellar plate not outlined. Head with two dark grey to nearly black stripes along frontal stripe towards lunule, and grey stripe between them. Lunule medium-sized, semicircular. OT index 1.3–1.5. Antenna and arista black. Eye height 2.7–3.0 times the vertical diameter of basoflagellomere. Third aristomere 2.5–4.0 as long as 2nd one. Eye 3.0–3.8 times as high as gena. Each gena with a single row of minute bristles, posterior bristle larger than others. Palpi black.

Mesonotum with lateral stripes varied from dark grey with brownish tint to brown, extending to anterior dorsocentral bristle. Dark grey medial stripes reaching posterior third of mesonotum. Areas between stripes without small bristles. Two pairs of dorsocentral bristles developed. Femora black with yellow apices; tibiae black with yellow bases; tarsomeres of fore legs black, those of middle and hind legs sometimes with yellow base. Wing veins *M* and R_{4+5} slightly converging in distal half; distal section of *Cu* 1.3–1.6 times as long as *tp*. Abdominal tergite 3 with two rounded, black, medium-sized or large spots; tergites 4 and 5 with dark median striae; fore tergites with elongated brown fields of modified microtrichiae.

Genitalia (Figs 47–52). Epandrium massive, with 7–9 pairs of bristles on posterior surface, rounded from below in profile; short surstilar lobes visible only from behind. Hypandrium long, uniformly narrow. Aedeagus with massive base, in basal half notched ventrally in profile.

Taxonomic notes. The external characters useful for the determination of this species are few: the absence of any distinct ocellar plate, black legs, the presence of dark fields on lower edges of fore tergites are known for other species. On the contrary, characters of the male genitalia allow easy determination: the shape of epandrium and hypandrium are easily recognizable, and the notched aedeagus is unique among *Leucopis*. This species belongs to a separate *charactophalla* group.



Figs 47-52. *Leucopis characterophalla* sp. n., male genitalia. 47, general view from side; 48, part of epandrium from behind; 49, apex of edite from below; 50, aedeagus from side; 51, aedeagus from below; 52, gonopods and parameres from below.

Distribution. USA (California, Texas), Mexico (Tamaulipas).

Biology. Reared from *Aphis pomi* Deg. and *Aphis medicaginis* Koch.

Etymology. Charactos (in Greek) – notched, toothed; phallus – synonym of aedeagus.

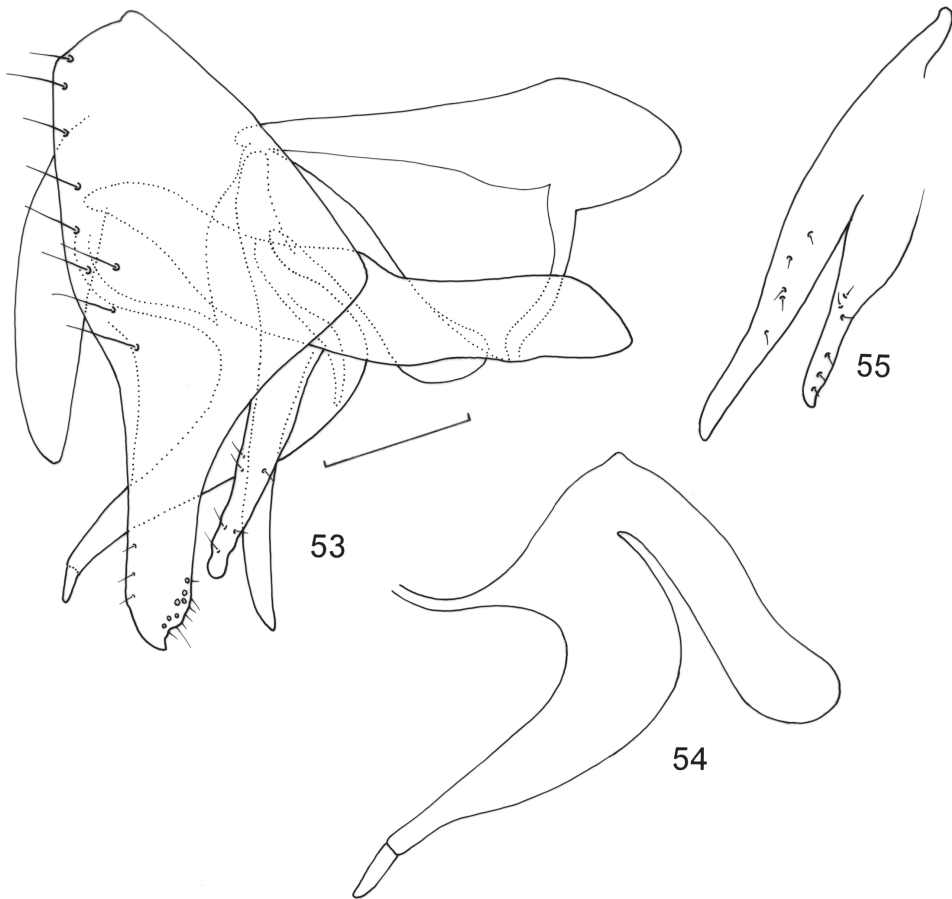
Species group *askophalla*

Leucopis askophalla sp. n. (Figs 53-55)

Holotype. ♂, USA, California, "Thousand palms, Cal. 27.II.1955, J.E.H. Martin" (CNC). Genitalia of holotype are distinctive and not prepared.

Paratypes. USA, California: 6 ♂, same place as for holotype, but 3-5.III.1955 and 5.IV.1955, W.R. Richards (CNC and ZIN); 2 ♂, same place as for holotype, but 25.III.1955, W.R.M. Mason (CNC); 1 ♂, Coachella, "5 8 28" (CNC); 1 ♂, 1 ♀, same place, but "11 8 28" (CNC); 1 ♂, 1 ♀, San Joaquin Co., September, reared from *Aphis maidis*, W.M. Davidson (CNC); 1 ♂, 1 ♀, Gardena, W.M.

Fredenburg (CNC); 1 ♂, Fairfield, Aug. 1949, R.M. Bohart (CNC); 7 ♂, 3 ♀, California, Lake Hughes, Los Angeles Co., 22.V.1959, predator of *Macrosiphum longirostris*, aphid host *Cirsium* sp., E.I. Schlinger (CNC); 5 ♂, 2 ♀, same place and collector, but 11.VII.1958, *Salix* sp. (CNC); 1 ♀, same data, but *Chaitophorus salicicola* on *Salix laevigata* (CNC); 1 ♂, same place and collector, but 22.V.1959, *Aphis rumicis*, host *Rumex crispus* (CNC); 2 ♂, 2 ♀, Coyote Creek, Riverside Co., "11 6 1963", E.I. Schlinger (CNC); 1 ♂, Deep Canyon, Riv. Co., 27.XI.1963, E.I. Schlinger (CNC); 1 ♂, Citrus Exp. Sta. Riverside Co., 27.IV.1960, on *Capitophorus shepherdiae*, E.I. Schlinger (CNC); 1 ♂, same place and collector, but 8.IV.1960, *Macrosiphum* sp., host *Baccharis* sp. (CNC); 1 ♂, same place and collector, but 16.IV.1960, *Macrosiphum solanifolii* (CNC); 1 ♀, Riverside, 16.IV.1960, E.I. Schlinger (ZIN); 1 ♂, 8 miles W of Blythe, Riverside Co., 13.X.1967, D.S. Horning Jr. (CNC); 1 ♂, same place, but 22.III.1963, R.O. Shuster (CNC); 1 ♂, 1 ♀, Blythe, 1.V.1955, W.R. Richards (CNC); 1 ♂, 3 ♀, Litchfield, 24.VI.1960, *Macrosiphum coweni* group, E.I. Schlinger (CNC); 1 ♂, 1 ♀, Helendale, 18.III.1957, E.I. Schlinger (CNC); 1 ♂, Kramer Hills Boron, 10.V.1955, W.R.M. Mason (CNC); 1 ♀, Newberry, 14.IV.1955, W.R. Mason (CNC); 1 ♂, Indio, 2.V.1945, A.L. Melander (CNC); 5 ♂,



Figs 53-55. *Leucopis askophalla* sp. n., male genitalia. **53**, general view from side; **54**, aedeagus from side; **55**, gonopods and parameres from below.

3 ♀, same place, but 6.III.1955, W.R. Richards (CNC); 1 ♀, Golden, 17.VI.1940, A.L. Melander (CNC); 1 ♀, Bakersfield, Kern Co., III.1960, on *Aphis helianthi*, E.I. Schlinger (CNC); 1 ♀, Bundy Cyn. Riverside Co., 19.IV.1960, *Aphis gossypii* on *Salvia apiana*, J.C. Hall (CNC); 1 ♀, Joshua Tree Nat'l Mon., 16.IV.1960, *Aphis helianthi* on *Yucca brevifolia*, D. Anneke (CNC); 1 ♂, 1 ♀, La Quinta, 5.IV.1955, J.E. Martin (CNC); 1 ♂, Kane Springs, Westmorland, 14.II.1955, W.R.M. Mason (CNC); *Oregon*: 3 ♀, Chiloquin, 25.VI.1960, predaceous on *Capitophorus* sp., E.I. Schlinger (CNC and ZIN); *Wyoming*: 1 ♀, Yellowstone Park, Bunsen Peak, 8.VII.1923, A.L. Melander (CNC); *Nevada*: 1 ♂, Glendale, 14.II.1930, *Chrisothamnus paniculatus*, D.E. Fox (CNC); *Arizona*: 3 ♂, 2 ♀, Tucson, Pima Co., 2400'-2600', 10.VI.1972, T.P. Sluss (CNC); 4 ♀, same data, but 5.V.1972 (CNC); 1 ♂, 3 ♀, same place, D. Foster (CNC); *Arizona*: 12 ♀, 25 miles NW of Tucson, 23 and 30.III.1972, T.P. Sluss (CNC); *Texas*: 1 ♂, Sander-son, 28-29.IV.1959, at aphids colony, on flowers on bullthistle, J.F. McAlpine (CNC); 1 ♂, Big Bend N.P., Oak Spring, 4500', 1.V.1959, J.F. McAlpine (CNC).

Description. Male and female. Body length 2.0-2.5 mm. Body light grey. Head 1.5-1.7 times as high as long. Frons slightly widened anteriorly; head 2.7-2.9 times as wide as frons. Ocellar plate cardiform and interrupted medially. Head with two dark grey (nearly black) stripes along frons towards lunule and light stripe reaching lunule between them; outer stripes with indistinct inner edges. Ocellar plate, orbital and frontal stripes, and upper part of lunule covered with very thin and short bristles. Lunule small, semicircular. OT index 1.2-1.6. Antenna and arista black. Eye height 3.0-4.0 times the vertical diameter of basoflagellomere. Third aristomere 2.5-3.5 times as long as 2nd one. Eye 3.3-4.5 times as high as gena. Gena with minute bristles arranged in single rather sparse row, posterior bristle largest.

Mesonotum with wide, rather bright brown lateral stripes and grey medial stripes. Areas between stripes usually devoid of bristles over all length. Two pairs of dorsocentral bristles developed. Femora black with yellow apices; tibiae black with yellow bases. Basitarsus of fore leg entirely black or yellow only in basal half; two proximal tarsomeres of middle and hind legs sometimes yellow. Wing vein *M* slightly converging with *R*₄₊₅ in distal third, or these veins parallel; distal section of *Cu* 1.4-1.6 times as long as *tp*. Abdomen with faint goldish tint. Syntergite 1+2 having dark grey spot with wavy borders in basal half; tergite 3 with rather small black paired spots and faint darkening between them; tergites 4 and 5 with short longitudinal median black spots. In male, fore abdominal tergites with dark fields of modified microtrichiae on lateral edges.

Male genitalia (Figs 53-55). Epandrium medium-sized, with 8-10 pairs of bristles on posterior surface, passing into relatively wide (in profile) surstilar lobes. Hypandrium almost straight, without significant widening. Aedeagus with wide base, consisting of two parts: long bag-like process at base and smoothly narrowed body of aedeagus; aedeagal apodeme comparatively long in dorsoventral projection.

Taxonomic notes. The species is characterized by the following external features: distinct lateral stripes of the mesonotum, rather wide gena, and presence of dark fields of modified microtrichiae. However, these characters are similar to those of many other species of *Leucopis*. An uncommon character is the goldish tint of the abdomen, but it is rather unclear. Characters of the male genitalia (unusual shape of the aedeagus, long aedeagal apodeme, and almost straight hypandrium) are very distinct. It is valuable that the "bag" of the aedeagus is often visible on specimens without preparation. Based on the presence of fields of modified microtrichia, this species could be assigned to the *annulipes* group, but structure of the genitalia is very peculiar, and thus, it possibly belongs to a separate *askophala* group.

Distribution. USA (Oregon, Wyoming, Nevada, California, Texas, Arizona).

Biology. Wide oligophage. The list of preys is certainly not complete. The species was recorded on the following aphids: in Oregon: *Capitophorus* sp.; in California: *Aphis maidis* Fitch, *Macrosiphum longirostris* Gillette & Palmer on *Cirsium* sp., *Chaitophorus salicicola* Essig on *Salix laevigata*, *Aphis rumicis* L. on *Rumex crispus*, *Capitophorus shepherdiae* Gillette & Bragg, *Macrosiphum* sp. on *Baccharis* sp., *Macrosiphum solanifolii* (Ashmeed) = *M. euphorbiae* (Thomas), *Macrosiphum coweni* group, *Aphis gossypii* Glover on *Salvia apiana* and uni-

identified plant, *Aphis helianthii* Monell on *Yucca brevifolia*.

Etymology. Askos (in Greek) – bag; phallus – synonym of aedeagus.

Species group *lotophila*

Leucopis lotophila sp. n. (Figs 56-58)

Holotype. ♂ [partly damaged], USA, California, "Warner Springs, San Diego Co. Cal., VII-15-1959. *Aphis medicaginis*, aphid host plant *Lotus* sp., E.I. Schlinger collector", "sp. 45b" [identification by J.F. McAlpine], slide no. 7290 (NMNH).

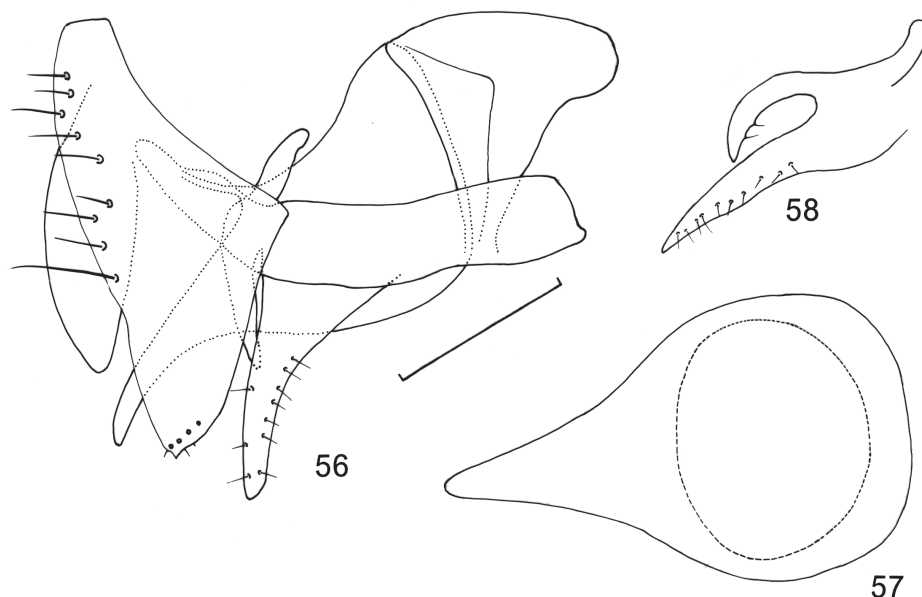
Paratype. 1 ♀, same data (NMNH).

Description. Male and female. Body length 1.7-1.9 mm. Body silvery-grey. Head 1.5-1.6 times as high as long. Orbits silvery-white, with small and irregularly arranged bristles only anteriorly. Ocellar plate in male drop-shaped, with indistinct interruption anteriorly; in female, this plate not observed. Head along frontal stripe with two dark grey stripes widening anteriorly. OT index approximately 1.5 in male and 1.35 in female. Lunule medium-sized, semicircular. Antenna and arista black. Eye height 2.5-2.65 times the vertical diameter of basoflagellomere. Third aristomere 2.5-3.5 times as long as 2nd one. Eye 2.5-2.6 times as high as gena. Each gena with single sparse row of minute bristles; anterior bristle much larger than others. Palpi black.

Mesonotum with brown lateral stripes reaching its posterior edge and grey medial stripes extending to its posterior third. Areas between stripes without bristles. Two pairs of dorsocentral bristles developed. Femora black with yellow apices; tibiae black with yellow bases; fore tarsi entirely black; 2-3 proximal tarsomeres of middle and hind legs brown. Wing veins *M* and *R*₄₊₅ slightly converging in distal half; distal section of *Cu* 1.45-1.6 times as long as *tp*. Abdomen silvery-white. Syntergite 1+2 with large grey spot covering its anterior half; tergite 3 with two black medium-sized spots; tergites 4 and 5 with black dots in anterior part. In male, fore abdominal tergites with elongated dark fields of modified microtrichiae on lower edges.

Male genitalia (Figs 56-58). Epandrium with 9-10 pairs of bristles on posterior surface, passing into massive surstilar lobes without constriction. Hypandrium more or less equal in width along all length except for posterior part. Parameres very short. Aedeagus in profile with massive base and thin apex, base extremely wide in dorsoventral projection.

Taxonomic notes. The species is characterized by the following external features: wide gena, very long lateral stripes of the mesonotum, black fore tarsi, and presence of dark fields on the edges



Figs 56-58. *Leucopis lotophila* sp. n., male genitalia. **56**, general view from side; **57**, aedeagus from below; **58**, gonopods and parameres from below.

of fore tergites in male. However, the structure of genitalia (massive surstilar lobes and extremely wide aedeagus) provides the most distinctive and valuable characters. According to this, the species is closely related to *L. shannoni* sp. n., and they constitute together the separate *lotophila* group.

Distribution. USA (California).

Biology. Predator of *Aphis medicaginis* Koch on *Nelumbium*.

Etymology. Lotos (in Greek) – lotus water lily; philos (in Greek) – friend.

***Leucopis shannoni* sp. n.**
(Figs 59-61)

Holotype. ♂, USA, Washington, "Hatton, Washn. Sand Hills 7.23. R.C. Shannon", slide no. 6948 (NMNH).

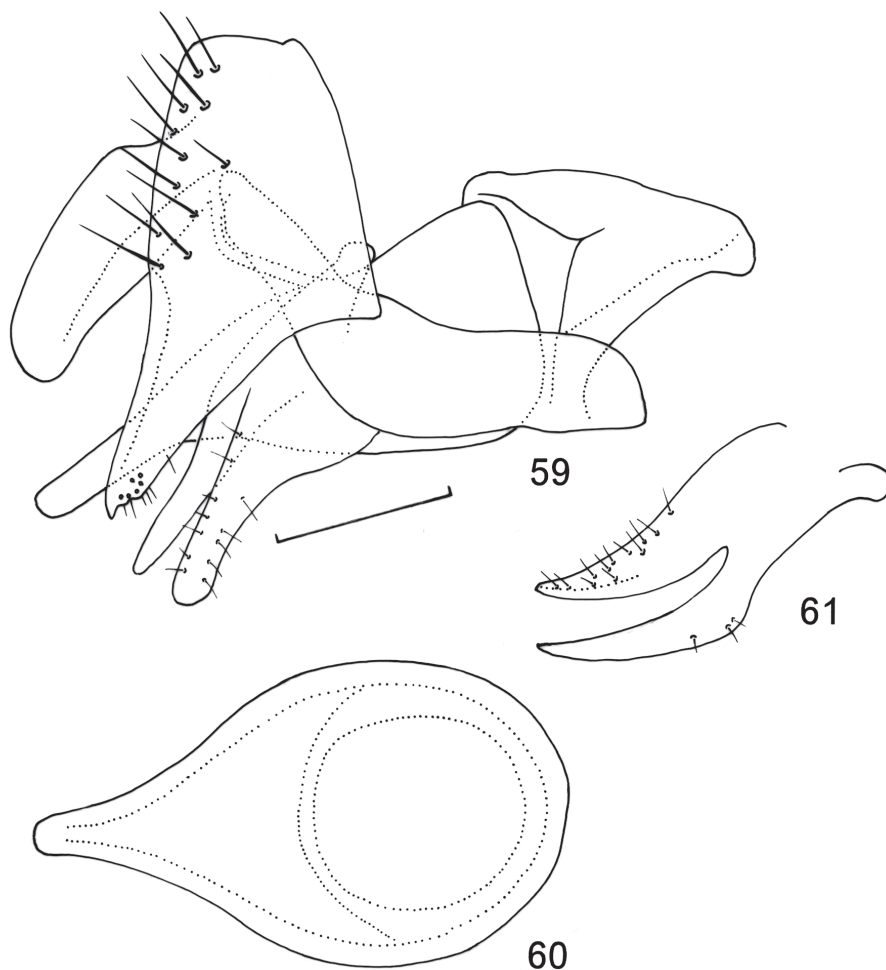
Paratypes. 2 ♂, same data (NMNH).

Description. Male. Body length 2.0-2.2 mm. Head 1.5 times as high as long. Frons slightly widened anteriorly; head 2.45-2.6 times as wide as frons. Ocellar plate long, triangular. Head with two dark grey stripes (their inner edges indistinct) along frontal stripe towards lunule; light interruption between these dark stripes reaching lunule. OT index 2.1-2.3. Lunule medium-sized, semicircular. Antenna and arista black. Eye height 3.5 times the vertical diameter of basoflagellomere. Third aristomere 3.5 times as long

as 2nd one. Eye 2.5-3.5 times as high as gena. Gena with 3-4 small bristles in regular row, anterior bristle much larger than others. Palpi black.

Mesonotum with brown lateral stripes of extending to posterior dorsocentral bristles. Dark grey medial stripes extending to 1/3 of mesonotum length, but rows of small bristles extending to posterior dorsocentral bristle. Areas between stripes without bristles. Two pairs of dorsocentral bristles developed. Femora black with yellow apices; tibiae dark with yellow bases and (partly) apices; fore tarsi with only basitarsus yellow, middle and hind tarsi with 2-3 proximal tarsomeres yellow. Wings with veins *M* and *R*₄₊₅ converging in distal half; distal section of *Cu* 1.45-1.55 times as long as *tp*. Abdomen with large dark grey spot covering basal 3/4 of syntergite 1+2; tergite 3 with two rather large black spots; tergites 4 and 5 each with one median black elongate spot; syntergite 1+2 with elongate dark fields of modified microtrichiae on lower edges.

Genitalia (Figs 59-61). Epandrium with 10-12 pairs of bristles on posterior side, passing into surstilar lobes smoothly, without constriction. Epandrium slightly widened near centre. Gonopods and parameres subequal in length. Aedeagus in profile with massive base and rounded apex; base extremely wide in dorsoventral projection.



Figs 59-61. *Leucopis shannoni* sp. n., male genitalia. **59**, general view from side; **60**, aedeagus from below; **61**, gonopods and parameres from below.

Taxonomic notes. The species is characterized by the following external features: long triangular ocellar plate, widely separated posterior ocelli, wide gena, large spots on the abdomen, and dark fields on the edges of syntergite 1+2. The genitalia are extremely characteristic in the very wide aedeagus. Without doubt, this species is closely related to *L. lotophila* sp. n. and belongs to the same group.

Distribution. USA (Washington state).

Biology. Unknown.

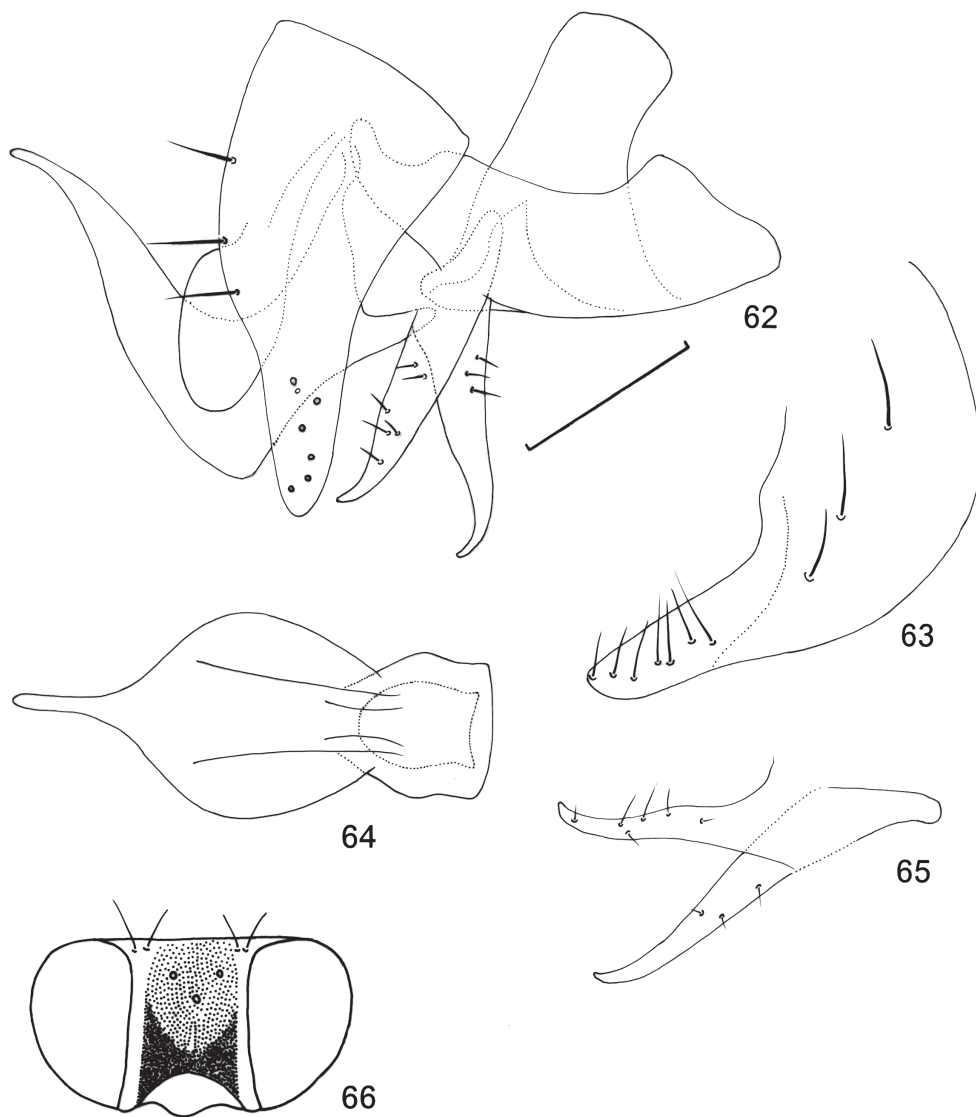
Etymology. The species is named after R.C. Shannon, who collected the type series.

Species group *chillcotti*

Leucopis chillcotti sp. n. (Figs 62-66)

Holotype. ♂, **Canada**, North-West Territories, "Salmita Mines, 64°05'N, 111°15'W. N.W.T., 12-VI-1953. J.G. Chillcott" (CNC). Genitalia of holotype not prepared.

Paratypes. **Canada**, North-West Territories: 2 ♂, Yellowknife, 5 and 8.VI.1953, J.G. Chillcott (CNC); 2 ♂, 1 ♀, Muskox L., 64°45'N 108°10'W, J.G. Chillcott (CNC); **Yukon Territories**: 1 ♀, La Force L., 62°41'N 132°20'W, 3300, 13.VII.1960, J.E.H. Martin (CNC); 1 ♂, Otter Lake, 62°25'N 130°25'W, 400', 27.VII.1960, E.W. Rockburne (CNC). **USA**, **Wyoming**: 1 ♂, Teton Pass, E side, 74-8400',

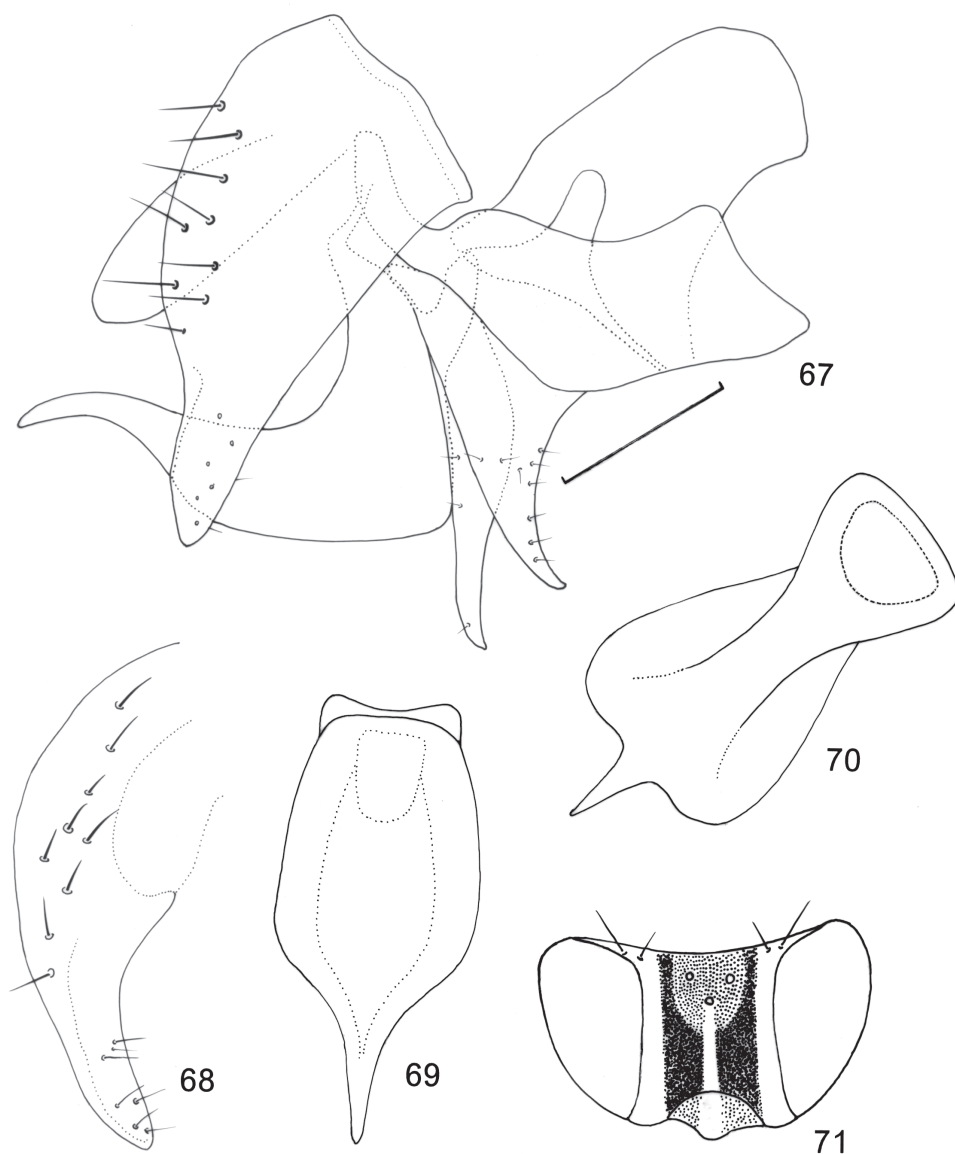


Figs 62-66. *Leucopis chillcotti* sp. n. 62-65, male genitalia: general view from side (62), part of epandrium from behind (63), aedeagus from below (64), gonopods and parameres from below (65); 66, head from above.

16.VII.1961, J.G. Chillcott (CNC); *Colorado*: 1 ♂, 3 miles N of Nederland, 8500', 2.VII.1961, J.G. Chillcott (CNC); *California*: 1 ♂, Truckee, Tahoe Co., 6000', 14.VII.1961, B.H. Poole (CNC); 2 ♂, Prosser Creek, near Hobart Mills, 6300', 13.VII.1961, B.H. Poole (CNC).

Description. *Male and female.* Body length 1.7-2.2 mm. Body grey. Head 1.4-1.6 times as high as long. Frons (Fig. 66) widened anteriorly; head 2.6-2.8 times as wide as frons. Orbits light grey. In male, ocellar plate oval, occupying entire width of frontal stripe, with light interrup-

tion anterior to anterior ocellus; in female, ocellar plate smaller, resembling that of *L. herrmanni* sp. n. (Fig. 71). Frontal stripe anterior to ocellar plate dark, nearly black. OT index 1.0-1.4. Lunule medium-sized, semicircular. Antenna and arista black. Eye height 2.5-3.0 times the vertical diameter of basoflagellomere. Third aristomere 3.3-4.0 times as long as 2nd one. Eye 2.3-2.8 times as high as gena. Each gena with a row of few minute bristles; anterior bristle much larger than others.



Figs 67-71. *Leucopis hermanni* sp. n. 67-70, male genitalia: general view from side (67), part of epandrium from behind (68), aedeagus from below in two projections (69, 70); 71, head from above.

Mesonotum grey. Lateral and medial stripes absent completely in specimens collected in Canada, Wyoming and Colorado; mesonotum uniformly covered by rows of small bristles. Traces of medial stripes present in anterior part of mesonotum in specimens collected in California, with rows of small bristles situated be-

tween them. Two pairs of dorsocentral bristles developed. Anterior legs entirely black; basitarsus of middle and hind legs entirely or partly yellow. Wing veins *M* and *R*₄₊₅ parallel or slightly converging in apical half; distal section of *Cu* 1.5-2.0 times as long as *tp*. Male abdomen grey and slightly shiny viewed from above; from be-

hind, syntergite 1+2 and tergite 3 black and shiny; tergites 4 and 5 grey. In female, syntergites 1+2 and tergite 3 grey and shiny viewed from above, black and lustrous when viewed from behind. Presence of fields of modified microtrichiae on lateral edges of fore abdominal tergites in male not evident, but most probably they present (by analogy with close relative *L. hermanni* sp. n.).

Male genitalia (Figs 62-65). Epandrium with three bristles on each side, indistinctly passing into surstilar lobes; surstilar lobes wide, rounded at apex, with several rather large bristles on medial sides. Hypandrium massive. Aedeagus curved in profile, widened near centre, with sharp apex. Central part of aedeagus characteristically widened in dorsoventral projection.

Taxonomic notes. Determination of this species is rather simple not only by characters of the genitalia, but also by external ones. The species has very distinctive external characters: the large ocellar plate, absence of stripes on the mesonotum, and the dark, shiny abdomen. According to the characters of the male genitalia, this species is close and undoubtedly related to *L. hermanni* sp. n. and form a distinct group *chillcotti* which includes these two species.

Distribution. Canada (North-West and Yukon Territories), USA (Wyoming, Colorado, California).

Biology. Unknown.

Etymology. The species is named after J.G. Chillcott, who collected most of the type series.

***Leucopis hermanni* sp. n.** (Figs 67-71)

Holotype. ♂, **Canada, Alberta**, "Coleman, Alta. 12.VI.1962. K.C. Hermann", slide no. 7213 (CNC).

Description. *Male.* Body length 2.1 mm. Body grey. Head 1.6 times as high as long. Frons (Fig. 71) widened anteriorly; head 2.4 times as wide as frons. Orbits silvery-white. Ocellar plate dark grey, roundly-triangular, not occupying entire width of frontal stripe. Frontal stripe black; black coloration continuing on lunule to base of antenna and interrupted in the middle by narrow light stripe going from anterior ocellus to base of antenna. OT index 1.2. Lunule medium-sized, semicircular. Antenna and arista black. Eye height 2.75 times the vertical diameter of basoflagellomere. Third aristomere 3.5 times as long as 2nd one. Eye 3.1 times as high as gena. Each gena with sparse row of small bristles; anterior bristle much longer than others. Palpi black.

Mesonotum with lateral stripes brown with goldish tint, extending to posterior dorsocentral bristle, and medial stripes dark grey, extending to posterior third. Areas between stripes without

bristles. Two pairs of dorsocentral bristles developed. Femora black with yellow apices; tibiae black with yellow bases; fore tarsi with only basitarsus yellow at base; middle and hind tarsi with 2-3 basal tarsomeres yellow. Wing veins *M* and *R*₄₊₅ distinctly converging; distal section of *Cu* 1.1 times as long as *tp*. Abdominal syntergite 1+2 occupied almost entirely by black spot with wavy hind margin; tergite 3 with a pair of large black spots extending to anterior edge of tergite; fore tergites with elongate dark fields of modified microtrichiae on lower edges.

Genitalia (Figs 67-70). Epandrium covered with 9-10 pairs of bristles on posterior surface; surstilar lobes massive, beak-shaped, with group of rather long bristles on inner sides. Hypandrium wide, with thin apical part. Aedeagus widened in profile near centre, very wide in dorsoventral projection; aedeagal apodeme large. Gonopods wide at base.

Taxonomic notes. According to the characters of the genitalia, this species is a close relative of *L. chillcotti*. The very unusual shape of aedeagus is almost identical to that of *L. chillcotti* as well as the shape of epandrium. By contrast, the epandrium has the triple number of large bristles, as compared with *L. chillcotti*; the hypandrium of *L. hermanni* in apical part is thinner, and these species have clear differences in external morphology: in *L. hermanni*, ocellar plate is smaller, dark frontal stripe is extended into the lunule, mesonotal stripes are distinct, abdomen is not lustrous, and abdominal tergite 3 has large black spots.

Distribution. Canada (Alberta).

Biology. Unknown.

Etymology. The species is named after K.C. Hermann, who collected the holotype.

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